

Do people live in urban neighbourhoods because they do not like to travel? Analysing an alternative residential self-selection hypothesis

Abstract

Previous research has indicated that mode-specific attitudes can affect travel mode choice through the residential location choice. According to the principle of residential self-selection, people will try to choose a residential neighbourhood that enables them to travel with as high a share as possible of their amount of travel with their preferred mode. In this study, however, we will analyse whether differences in travel distance, travel time and travel satisfaction in urban versus suburban neighbourhoods are due to travel-liking attitudes, the residential location or a combination of both. Results of this study – analysing leisure trips within the city of Ghent (Belgium) – indicate that suburban respondents are, compared to urban respondents, more satisfied with their trips, which are also longer in time and distance. Suburban respondents also have a more positive stance towards travelling, suggesting a possible residential self-selection process. Travel lovers might prefer a residential neighbourhood where travel distances and travel time are relatively high, while people who do not like to travel might prefer to live in a neighbourhood that enables more short-distance and less travel-time intensive trips. This study suggests that especially people who do not like to travel self-select themselves in urban neighbourhoods in order to limit travel distance and travel time. In contrast, respondents with a more positive stance towards travelling are equally distributed in urban and suburban neighbourhoods. Results also indicate that travel distance and travel time are mainly affected by respondents' residential neighbourhood, while travel satisfaction is mainly affected by travel-liking attitudes.

Keywords

Residential self-selection; Travel behaviour; Travel liking; Travel satisfaction

1. Introduction

Previous research has shown that walking, cycling and public transport use are significantly higher in compact, mixed-use neighbourhoods than in low-density neighbourhoods, while car use is significantly lower (e.g., Cao et al., 2009; Cervero, 1996; Ewing and Cervero, 2010; Mokhtarian and Cao, 2008). This can be partly explained by the physical appearances of these neighbourhoods. Low densities and diversities in suburban neighbourhoods result in higher average trip distances, encouraging car use. Besides, the dispersed land use pattern of these neighbourhoods makes it difficult to efficiently organise public transport services, resulting in low frequencies and long average distances to public transport stops. In urban neighbourhoods, average travel distances are shorter due to a more compact and mixed-use pattern, stimulating active travel and making it easier to organise high-frequency public transport within walking distance of a substantial share of the neighbourhoods' residents. As a consequence, urban planners have – since the 1990s – tried to reduce negative effects of (long-distance) car use, such as congestion and greenhouse gas emissions, by encouraging the development of compact, mixed-use neighbourhoods (e.g., Cervero, 1996; De Vos et al., 2012; Schwanen and Mokhtarian, 2005a).

The built environment, however, is not the only important explanatory variable of peoples' travel behaviour. Over the past years various studies have shown that (travel-related) attitudes are

important determinants of travel mode choice (e.g., Bagley and Mokhtarian, 2002; Kitamura et al., 1997; Van Acker et al., 2011). A positive stance towards a certain mode of transport will result in a higher use of that mode, as long as the use of this mode is not restricted by elements such as the built environment. These attitudes can also affect mode choice indirectly; individuals with an affinity towards a certain kind of travel will often choose a residential location that enables them to use their preferred travel mode for the most of their trips (e.g., Cao et al., 2007; De Vos et al., 2012; Kamruzzaman et al., 2015; Schwanen and Mokhtarian, 2005a, 2005b; Handy et al., 2005; van Wee, 2009; van Wee et al., 2002). Since most low-density suburbs were designed to be well accessible by car, car-loving persons will try to self-select themselves in these neighbourhoods, while short average distances in urban-type neighbourhoods might attract people who prefer to walk or cycle to their destination. Some studies also indicate that people attaching great importance to the proximity of the workplace, shopping facilities, recreational activities and other amenities, try to self-select themselves in compact, mixed-use neighbourhoods (Næss, 2009, 2014). Næss (2009, 2014) found a negative effect of the importance attached to proximity (to the workplace, shopping opportunities and public transport) and living in or close to a city centre on the distance travelled by car, while Scheiner (2010) indicates that preferences for proximity do not play an important role on travel distance.

Since average travel distances significantly differ between urban and suburban neighbourhoods, it might also be possible that people who dislike travelling prefer to live in an urban neighbourhood where most destinations are nearby, while people who like travelling are not opposed living in a more suburban-type neighbourhood with longer average distances. Although not analysed to the same degree, studies also indicate that average travel time (see Ewing and Cervero, 2001) and travel satisfaction (De Vos et al., 2015a) – i.e., the way people value their travel – is lower in urban neighbourhoods than in suburban neighbourhoods. However, these differences might also be due to varying travel-liking attitudes.

In this paper we will analyse whether differences in travel distance, travel time and travel satisfaction are due to the residential location, travel-liking attitudes or both; based on trips to respondents' most recent out-of-home leisure activity within the city of Ghent (Belgium). Leisure trips were chosen because of the assumption that mode choice and destination choice – and consequently travel distance and travel time – are most free for such trips, especially compared to more mandatory trips such as commute trips. The paper is organised as follows. Section 2 reviews the literature on how travel distance, travel time and travel satisfaction varies according to the residential location, and how these differences could be affected by travel-liking attitudes. Section 3 explains the used data and methods, while the main results are provided in Section 4. Discussion and conclusion are provided in Section 5.

2. An alternative residential self-selection hypothesis

2.1 Travel distance, travel time and travel satisfaction according to the residential location

Varying travel distances between urban and suburban-style neighbourhoods are well accepted in travel behaviour studies. People living in suburban neighbourhoods travel longer distances than urban residents. Of course, this is not a surprise since average densities and diversities are higher in urban areas reducing the average distance to the nearest destination (e.g., Cervero and Kockelman,

1997; Frank and Pivo, 1994; Vance and Hedel, 2007; van Wee, 2002). Furthermore, the street network also affects the travel distance. The connectivity (i.e., the ease of moving) is high and average distances are low in a neighbourhood with a gride-like street network with small building blocks. By contrast, low connectivity and long average distances can be found in neighbourhoods characterised by a lot of dead-end streets and a low density of intersections (due to large blocks). However, as neighbourhoods with a high connectivity are often found in compact, mixed-use city centres, it makes it difficult to determine the independent contribution of the street network on travel distance (Cervero, 1996; Ewing and Cervero, 2001; Saelens et al., 2003). Furthermore, differences in travel distance (due to density, diversity and the street network configuration) will also result in a higher car ownership in suburban neighbourhoods since a lot of destinations are not within reach via slow modes. This high car ownership, however, will subsequently result in a high car dependency and even more long-distance (car) travel.

The link between residential location and travel time is less clear than the link between residential location and travel distance, since longer distances are often compensated for by using faster travel modes. In suburban neighbourhoods, distances are often too long for active travel, forcing people to travel by motorised travel modes. The longer distances in suburban neighbourhoods – compared to urban neighbourhoods – will therefore not necessarily result in longer travel times. Nevertheless, studies do indicate that people living in suburban-type neighbourhoods have longer travel times for both work and non-work trips compared to people living in more compact, mixed-use neighbourhoods (e.g., Dill, 2004; Ewing and Cervero, 2001; Ewing et al., 1994; Khattak and Rodriguez, 2005; Schwanen et al., 2005).

Recently, travel behaviour studies are starting to show more interest in how people experience their travel and how satisfied they are with it (De Vos et al., 2013; Ettema et al., 2010, 2011). Although these studies indicate that there are substantial differences in the way people experience and evaluate their trip according to varying trip characteristics (e.g., weather conditions, congestion levels) and the chosen travel mode (Abou-Zeid, 2009; De Vos et al., 2015a, 2015b; Duarte et al., 2010; Ettema et al., 2011; Friman et al., 2013; Olsson et al., 2013), the link between residential location and travel satisfaction has not been analysed thoroughly. To the best of our knowledge, only two studies have analysed this relation. According to De Vos et al. (2015a) – using the same data as this study – suburban residents experience more positive feelings during travel and evaluate their trip more positively compared to urban residents, and this for all travel modes. Also Cao and Ettema (2014) indicate that travel satisfaction is lower in high-density neighbourhoods compared to low-density suburbs, although public transport availability seems to positively affect travel satisfaction. It is not directly clear, however, why travel satisfaction differs according to the residential location. Cao and Ettema (2014) state that self-selection plays a significant role in explaining travel satisfaction. Individuals are likely to seek a neighbourhood enabling them to have satisfying trips. This could be obtained by living in a neighbourhood that stimulates the use of a preferred travel mode, but also by living in a neighbourhood that brings along a certain preferred trip length (in time and distance). It might therefore be possible that travel-liking attitudes – besides mode-specific attitudes – attenuate the effect of the residential neighbourhood and that travel satisfaction is affected by these attitudes, through the residential location choice. In this paper we will analyse these relations.

2.2 Travel liking

From an economic point of view, travel – and travel time in particular – is a cost to be paid in order to participate in a certain activity at the destination of the trip. Therefore, travel time savings have always been one of the most important components of transport policies in order to convert ‘unproductive’ time into economically valuable time (Jain and Lyons, 2008; Lyons et al., 2007; Metz, 2008). However, some studies indicate that people do not always want to reduce or minimise their travel time indicating that – besides offering access to spatially separated activities – travelling itself also possesses a positive utility (Redmond and Mokhtarian, 2001). First of all, people can perform activities while travelling, especially when using public transport. Public transport users can use travel time productively to work or study, enhanced by using mobile technology such as smartphones and laptops (e.g., Ettema et al., 2012; Lyons et al., 2007). Furthermore, travel time is often the only time of a day that people are really free, away from the obligations of work and home. Travel time gives people the opportunity to perform activities which they cannot perform at other times of the day. A lot of these activities, such as daydreaming or listening to music, are actually ‘anti-activities’ giving travellers the chance to time-out (Jain and Lyons, 2008; Mokhtarian and Salomon, 2001). Other people use this time to catch up with specific tasks, such as reading a book or making social phone calls. However, some of the activities performed during travel, such as relaxing, reading a book or listening to music, might be attempts to abate boredom (Ettema et al., 2012; Lyons et al., 2007). Finally, travel time also gives the opportunity to mentally prepare for the activity ahead (i.e., ‘transition time’). Travellers are able to adjust and prepare oneself for a different social setting at the destination of the trip, for example when travelling from home to work or vice versa (Jain and Lyons, 2008; Lyons et al., 2007; Mokhtarian and Salomon, 2001).

Mokhtarian and Salomon (2001) even indicate that travel is not always as derived as commonly assumed. People might travel longer distances than necessary, not because the distant activity will satisfy the needs of these people more, but just because it is located farther away. For instance, people can decide to eat out instead of staying at home because they have a desire to get out and go somewhere. The destination/activity becomes an excuse or justification for the desired travel; the trip generated the activity. Elements such as the sensation of speed, the exposure to the environment or the enjoyment of scenic beauty can result in a liking for travel itself. In most extreme cases, there is no destination at all. For some leisure activities, such as recreational walking, jogging or cycling, travel has become the activity itself (Mokhtarian and Salomon, 2001; Ory and Mokhtarian, 2005). Although there are no studies directly analysing the effects of travel-liking attitudes on travel satisfaction, Ory and Mokhtarian (2005) did indicate that a general travel-liking attitude positively affects the way people feel about travelling (on a scale going from *strongly dislike* to *strongly like*) to different types of activities and by using different types of travel mode. This suggests that people who like to travel are more satisfied with specific trips.

2.3 Self-selection

It is reasonable to assume that people living in suburban-style neighbourhoods and people that have positive travel-liking attitudes will travel longer trips (both in distance and time) and will be more satisfied with their travel. However, it is not clear whether the residential location or the travel-liking attitudes have the biggest effect on these travel characteristics. Furthermore, it is also possible that travel-liking attitudes affect travel through the residential location. People who do not oppose or

even like to travel probably do not mind or even prefer living in suburban neighbourhoods where travel time and especially travel distances are relatively long and low congestion levels make it easy to travel; while other people might try to minimise travel by living in compact, mixed-use neighbourhoods. Hence, a self-selection process occurs (Figure 1). If this is the case, the influence of the residential neighbourhood on travel distance, travel time and travel satisfaction might be overestimated. However, it is possible that attitudes and the residential neighbourhood do not affect the three different travel characteristics to the same degree. It is possible that travel distance, as a direct derivative of the physical neighbourhood characteristics (i.e., density, diversity and the street network configuration), is mainly affected by the residential neighbourhood while travel satisfaction is primarily affected by travel-liking attitudes. In this paper we will therefore analyse the effect of the residential neighbourhood and travel-liking attitudes on travel distance, travel time and travel satisfaction, both singly and each controlling for the other.

It might also be possible, however, that the built environment has an effect on people's attitudes toward travel (Figure 1). A two-way relationship exists between attitudes and behaviour; attitudes both affect, and are conditioned by, choices (e.g., Dobson et al., 1978; Golob, 2001; Mokhtarian and Cao, 2008; Tardiff, 1977). According to Bagley and Mokhtarian (2002) and Kitamura et al. (1997), changing land use characteristics might change travel-related attitudes. Increasing diversity and providing wide, well-lit sidewalks, for instance, might improve people's attitude toward walking, as walking becomes more feasible and comfortable. On the other hand, it is also possible that travel in urban surroundings – which is often characterised by congestion, noise pollution and parking problems – might deteriorate travel-liking attitudes. Furthermore, it is also possible that travel satisfaction – and especially the evaluation of trips – has an effect on travel-related attitudes (De Vos et al., 2015a). (Frequent) positively evaluated trips, for instance, might improve travel-liking attitudes and attitudes towards the used mode. However, in this study we will not analyse the effect of the residential location and travel satisfaction on travel-liking attitudes as this is not the focus of this study and we do not have longitudinal data at our disposal, making it difficult to capture behavioural changes due to adaptations in the built environment or frequent positive or negative trip evaluations (Bagley and Mokhtarian, 2002).

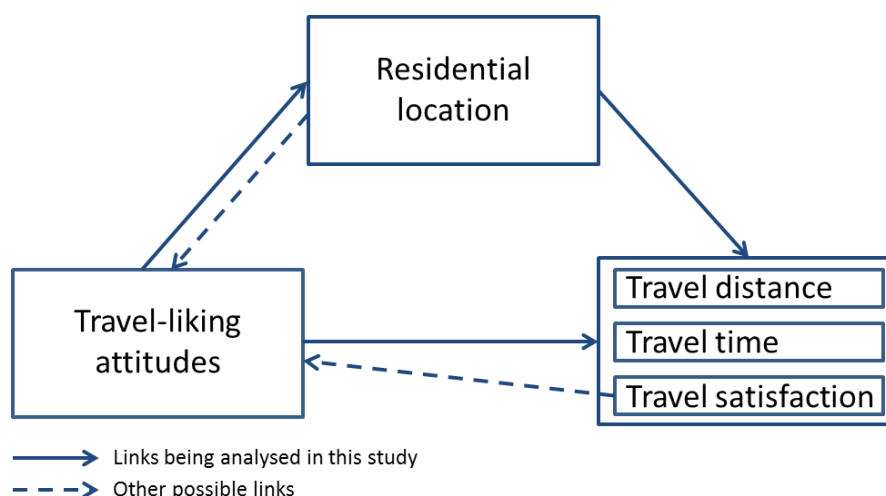


Figure 1. Conceptual model describing possible relationships between travel-liking attitudes, the residential location and travel distance, travel time and travel satisfaction.

3. Data

For this study we use a 2012 internet survey on travel behaviour and travel satisfaction, which took place in the city of Ghent, Belgium (250,000 inhabitants). We stratified Ghent's total population based on residential neighbourhood in order to examine differences in travel behaviour and travel satisfaction between people living in urban neighbourhoods and those living in suburban neighbourhoods. In total 27,780 invitations with a link to the survey were distributed in two internally homogeneous sets of five urban and seven suburban neighbourhoods within the city of Ghent. All households within these neighbourhoods received an invitation, covering about one fourth of all households in Ghent. The cover letter asked for an adult household member who participated in the residential location choice to complete the survey. Eventually, 1,807 persons completed the survey, of which 1,720 were retained after data cleaning. Although the recruitment method results in a rather low response rate (6.5%), the respondents are roughly comparable to the population of the selected neighbourhoods in socio-economic and demographic terms (Table 1; for more information see De Vos et al., 2015a).

Table 1. Socio-economic and demographic characteristics of the respondents (Source: Stad Gent, 2012; based on De Vos et al., 2015a, 2015b)

	Total respondents	Urban respondents (survey)	Urban residents (reference)	Suburban respondents (survey)	Suburban residents (reference)
<i>Personal characteristics</i>					
Gender					
Female	45.7%	48.8%	49.5%	41.4%	51.0%
Male	54.3%	51.2%	50.5%	58.6%	49.0%
Age					
18-30	22.3%	32.6%	31.4%	8.2%	12.3%
31-45	28.4%	31.2%	31.1%	24.6%	24.4%
46-60	26.1%	21.3%	19.1%	32.8%	30.0%
> 60	23.1%	14.9%	18.4%	34.4%	33.3%
Education					
Low (lower than bachelor degree)	22.7%	17.9%	N/A	29.2%	N/A
High (bachelor degree or higher)	77.3%	82.1%	N/A	70.8%	N/A
<i>Household characteristics</i>					
Household size					
Household members	2.3	2.0	1.8	2.7	2.5
Household monthly net income					
Low (< 1750 euro)	17.9%	9.9%	N/A	24.1%	N/A
Average (1750 - 3499 euro)	49.4%	49.4%	N/A	49.3%	N/A
High (3500+ euro)	32.7%	40.7%	N/A	26.5%	N/A
Household car ownership					
0	21.9%	32.4%	35.9%	7.7%	9.7%
1	52.6%	54.4%	52.5%	50.3%	55.5%
> 1	25.5%	13.2%	11.6%	42.3%	34.8%

3.1 Residential neighbourhood

Since the survey invitations were distributed in typical urban and suburban neighbourhoods within the city of Ghent, we have information on the residential neighbourhood of the respondents, i.e., we

are able to distinguish between urban versus suburban. The five urban neighbourhoods, built before the Second World War, have a high density (average density: 7590 inhabitants per km²), a high diversity, extensive public transport services and a design stimulating walking and cycling. The seven suburban neighbourhoods, mainly built after the Second World War, are characterised by low densities (average density: 1750 inhabitants per km²), low diversities, a street configuration stimulating car use (e.g., T-intersections and dead-end streets) and limited public transport services. In socio-demographic terms, urban neighbourhoods are characterised by smaller household sizes, lower household car possession, younger residents, and lower incomes, compared to suburban neighbourhoods (Table 1; for more information, see De Vos et al., 2015a). For this study we retained 729 respondents (42.4%) living in suburban neighbourhoods and 991 respondents (57.6%) living in urban neighbourhoods.

3.2 Travel liking

In order to measure people's travel liking – independent from elements such as mode choice and the type of trip – we asked respondents to indicate to which extent they agree with the following six statements on a scale from one (totally disagree) to five (totally agree):

- I like to discover new and unfamiliar places
- Reaching my destination is the only good thing about travel
- Traffic makes me nervous
- I like to travel
- Travelling is boring
- Travel time is wasted time

In order to obtain one general variable representing travel liking it is necessary to analyse the internal consistency (i.e., the average correlation) of the scores on the six statements. We therefore test the reliability of this generated travel-liking variable by using Cronbach's alpha. Values of Cronbach's alpha range from 0 to 1; the higher the score, the more reliable the generated scale is. Values above 0.7 are considered satisfactory and those exceeding 0.8 good (Santos, 1999). After reversing the scores on the negative statements on travel liking¹ (statement 2, 3, 5 and 6), we measured Cronbach's alpha. Although the value of Cronbach's alpha is satisfactory (i.e., 0.75), the value increases to 0.81 when deleting statement 1 and 3 (i.e., *I like to discover new and unfamiliar places* and *Traffic makes me nervous*). We therefore created a travel-liking variable by averaging the scores on statements 4 and the reverse scores of statements 2, 5 and 6. As people with a clear liking or disliking for travel might be more inclined to participate in the survey (compared to people feeling rather indifferent about travel), these people might be overrepresented in the sample.

3.3 Travel distance

Respondents were asked to indicate within which of the six windows of travel distances their most recent leisure trip pertains; i.e., 0-2 kilometres; 2-5 kilometres; 5-10 kilometres; 10-20 kilometres; 20-40 kilometres; and more than 40 kilometres. Based on the distribution of respondents in the varying travel distance frames, we consider respondents travelling less than 5 kilometres to their most recent leisure activity to travel short distances and respondents travelling more than 5 kilometres to travel

¹ Scores on negative statements on travel liking were reversed as follows: value 1 was replaced by value 5; 2 by 4; 3 remained 3; 4 by 2 and 5 by 1. Doing so, higher (reversed) scores on these statements indicate higher levels of travel liking.

long distances. Although this is a rather arbitrary and crude subdivision – resulting in a certain loss of information – it provides us with the most balanced distribution of respondents (i.e., two groups with an almost equal amount of respondents). Almost half of the respondents (48.8%) state that the distance of their most recent leisure trip was shorter than 5 kilometres (see also Table 2).

3.4 Travel time

We also asked respondents to indicate how long they travelled to their most recent leisure activity. Eight possible time frame answers were provided: 0-5 minutes; 5-10 minutes; 10-15 minutes; 15-20 minutes; 20-30 minutes; 30-45 minutes; 45-60 minutes; and more than 60 minutes. We consider that respondents who travel less than 15 minutes to their most recent leisure activity have a short travel time while respondents travelling more than 15 minutes have a long travel time. Applying this (rather arbitrary and crude) subdivision provides us with the most balanced distribution of respondents. Slightly more than half of the respondents (53.9%) indicated a travel time of less than 15 minutes (see also Table 2).

3.5 Travel satisfaction

In order to measure travel satisfaction of the respondents' most recent leisure trip, we used the Satisfaction with Travel Scale (De Vos et al., 2015b; Ettema et al., 2011). This scale measures (i) affective emotions during a trip and (ii) a cognitive evaluation of that trip. The six scales measuring the affective emotions during the trip are based on two dimensions (valence and activation) assessed by the Swedish Core Affect Scale (SCAS) (see Västfjäll et al., 2002; Västfjäll and Gärling, 2007). The endpoints of each scale are combinations of the valence and activation dimensions (respectively ranging from unpleasant to pleasant, and from deactivation to activation). Three of the six scales range from negative deactivation to positive activation:

- tired - alert
- bored - enthusiastic
- fed up - engaged

While the three other scales range from negative activation to positive deactivation:

- hurried - relaxed
- worried - confident
- stressed - calm

A cognitive evaluation of the trip being made is measured by three scales referring to general quality and efficiency of the trip:

- the trip was the worst I can think of - the trip was the best I can think of;
- the trip was very low standard - the trip was very high standard;
- the trip did not work out well - the trip worked out well.

For all the nine scales, scores vary from -3 to 3 with a higher score implying a higher satisfaction. In this study we subdivide the affective component of travel satisfaction (i.e., emotions during the trip) from the cognitive component of travel satisfaction (i.e., evaluation of the trip made). Since the internal consistency (i.e., the average correlation of a scale's items) of the six scales measuring emotions during the trip and the three scales measuring the cognitive evaluation of the trip are

assessed as good (Cronbach's alpha is respectively 0.85 and 0.86), we created a positive emotion variable by averaging the six scales measuring the affective emotions and a positive evaluation variable by averaging the three scales measuring cognitive evaluation. In the remainder of this paper (i.e., Section 4.3), respondents with a positive score on the standardised value of the averaged variables will be regarded as respectively experiencing positive emotions during travel and evaluating their trip positively.

4. Results

In this part we will analyse the main results of this study. In a first stage we will look at whether travel distance, travel time, travel satisfaction and travel liking really differ between urban and suburban respondents. Next, we will subdivide the respondents in four groups based on their residential location and their travel-liking attitudes. Doing so, we will analyse the effect of both variables on travel distance, travel duration and travel satisfaction, both singly and each controlling for the other.

4.1 Variations in travel distance, travel time, travel satisfaction and travel liking according to the residential location

In a first stage we look at whether travel distance, travel time and travel satisfaction truly differ according to the residential location. Table 2 clearly shows that travel distance varies according to the residential neighbourhood. There are significantly more suburban respondents travelling long distances (+5 km) compared to urban respondents (p-value of Pearson Chi-square test = 0.00). The largest share of urban respondents (60.3%) travels less than 5 kilometres to their most recent leisure activity, while this is only 33.0% for suburban respondents. A large share of suburban respondents (47.2%) travels 5 to 20 kilometres to their leisure activity. As indicated in Section 2, a higher density and diversity in urban neighbourhoods result in more destinations nearby and shorter average distances, compared to suburban neighbourhoods. The same pattern, albeit less striking, is present for travel time. The amount of respondents travelling less than 15 minutes (i.e., short travel time) is significantly larger for urban respondents (i.e., 58.1%) than for suburban respondents (i.e., 48.8%) (p-value of Pearson Chi-square test = 0.00). It is not surprising that the differences between urban and suburban respondents in travel time are smaller than the differences in travel distance, since urban respondents significantly travel more by slow modes compared to suburban respondents who often travel by car (Table 2).

Travel satisfaction also varies according to whether respondents live in urban versus suburban neighbourhoods. For all scales, except *alert-tired*², suburban respondents are significantly more satisfied with their trip compared to urban respondents. Differences seem to be largest for the emotions ranging from negative activation to positive deactivation, indicating that urban respondents are especially less calm, confident and relaxed compared to suburban respondents, possibly due to more busy traffic and congestion in urban areas. The average scores of (i) the emotions during the leisure trip and (ii) the cognitive evaluation of this trip are also significantly higher for suburban respondents than for urban respondents, indicating that suburbanites experience more positive feelings during their trip and also evaluate their trip more positively.

² De Vos et al. (2015b) and Olsson et al. (2012) indicate that the scale *alert-tired* is least correlated with the affective dimension of travel satisfaction and therefore could be deleted or replaced by another scale.

However, travel satisfaction differences according to whether people live in urban or suburban neighbourhoods should be treated with caution. A previous study – using the same data – indicated that variances in travel satisfaction according to the residential location are to a large extent explained by differences in, among others, socio-demographics (especially age) and attitudes towards travel and land use between urban and suburban respondents (De Vos et al., 2015a). Furthermore, this previous study also indicated that travel satisfaction differences according to the residential neighbourhood vary according to the travel mode chosen. As a result, the residential location only had a significant effect on travel satisfaction for people using the car and public transport.

Table 2 also provides information to which degree respondents like to travel. The average scores on the travel-liking statements seem to indicate that (both urban and suburban) respondents do not really like to travel. A possible explanation for this relatively low level of travel liking is that the statements relate to travelling in general. Other studies often asked respondents to indicate their travel liking for specific types of trips, resulting in a possible confounding of respondents' liking for the activity with their liking for travel. Not surprisingly, respondents like leisure trips more than commute trips (Mokhtarian and Salomon, 2001; Ory and Mokhtarian, 2005). This confounding of travel with the activity at the destination of the trip might also be an explanation of the relatively high travel satisfaction with the most recent leisure trip compared to the lower overall travel liking (Table 2). However, there is a certain extent of travel liking present. For instance, only half of the respondents (50.2%) agrees (agree - totally agree) on the statement Reaching my destination is the only good thing about travel, while slightly less than half of the respondents (48.2%) claims that they do not enjoy travelling (totally disagree - disagree on the statement I enjoy travelling). However, differences in travel liking occur according to whether respondents live in urban or suburban neighbourhoods. Except for the statement Traffic makes me nervous, all travel-liking statements indicate that suburban respondents have a more positive stance towards travelling than urban respondents. This is also indicated by the travel-liking variable; suburban respondents have a significantly better stance towards travel than urban respondents. Since the average value of the travel-liking variable is below 3 for both urbanites and suburbanites – indicating that most people will rather try to reduce, instead of increase, their travel distance and especially travel time – this could indicate that the self-selection process primarily occurs in urban neighbourhoods. People who do not like to travel, will probably try to avoid travelling a lot by self-selecting themselves in urban neighbourhoods, while people with a less negative stance towards travelling might not mind living in a more suburban-type neighbourhood.

Table 2. Variations in travel distance, travel time, travel satisfaction and travel liking according to the residential neighbourhood

	Urban respondents	Suburban respondents	t-Test
<i>Travel distance (kilometres)</i>			
0-2	29.6%	13.5%	N/A
2-5	30.7%	19.5%	N/A
5-10	13.2%	31.4%	N/A
10-20	6.5%	15.8%	N/A
20-40	7.4%	7.5%	N/A
40+	12.6%	12.3%	N/A
Long travel distance (+5km)	39.7%	67.0%	N/A
<i>Travel time (minutes)</i>			
0-5	12.0%	9.9 %	N/A
5-10	23.1%	20.0%	N/A
10-15	23.0%	18.9%	N/A
15-20	13.6%	17.9%	N/A
20-30	12.0%	15.3%	N/A
30-45	6.8%	8.0%	N/A
45-60	5.3%	5.7%	N/A
60+	4.2%	4.3%	N/A
Long travel time (+15 minutes)	41.9%	51.2%	N/A
<i>Travel mode choice</i>			
Car	37.3%	71.7%	N/A
Public Transport	12.0%	6.5%	N/A
Cycling	24.6%	13.2%	N/A
Walking	26.1%	8.6%	N/A
<i>Travel satisfaction (ranging from -3 to 3)</i>			
Tired - alert	0.34	0.37	
Bored - enthusiastic	1.25	1.37	*
Fed up - engaged	1.07	1.26	**
Hurried - relaxed	1.29	1.51	**
Worried - confident	1.28	1.43	**
Stressed - calm	1.32	1.55	**
Travel was worst - best I can think of	1.13	1.30	**
Travel was low - high standard	1.21	1.37	**
Travel did not work out well - worked out well	1.63	1.86	**
Positive emotion variable	1.11	1.30	**
Positive evaluation variable	1.32	1.52	**
<i>Travel liking (ranging from 1 to 5)</i>			
I like to explore new and unfamiliar places	1.81	2.03	**
Reaching my destination is the only good thing about travel	3.36	3.20	**
Traffic makes me nervous	2.95	2.91	
I enjoy travelling	2.58	2.81	**
Travelling is boring	3.57	3.38	**
Travel time is wasted time	3.70	3.43	**
Travel-liking variable	2.49	2.70	**

Note: * 0.05 < p < 0.1; ** p < 0.05

However, differences in travel time, travel distance and travel satisfaction of leisure trips according to the residential location might vary according to the leisure activity performed. Urban respondents do not always participate in the same leisure activities than suburban respondents. Table 3 indicates

that urban respondents – compared to suburban respondents – go out more often to a bar or club, while suburban respondents eat out more often than urban respondents (based on χ^2 tests; $p < 0.05$). The type of leisure activity also has an effect on travel satisfaction of the trip towards the activity. Suburban respondents experience trips towards restaurants more positive than other leisure trips, while urban respondents experience recreational shopping trips more positive and trips to family and friends more negative compared to other leisure trips (based on one-sample t-tests; $p < 0.05$). Differences in travel satisfaction between urban and suburban respondents – which are already indicated by Table 2 – are especially significant for visiting family and friends, eating out and being a spectator of a cultural/sport activity. Suburban respondents have a significantly higher travel satisfaction when travelling to these activities than urban respondents, which is not the case for other leisure activities (based on two-sample t-tests; $p < 0.05$). Finally, Table 3 also indicates differences in travel time and travel distance between urban and suburban respondents travelling to various leisure activities. Suburban respondents have longer travel times when travelling to a cultural/sport activity (as an active participant) and when they go recreational shopping. Travel distance of suburban respondents is longer for all leisure trips, except for trips to family and friends and to eat out (based on χ^2 tests; $p < 0.05$).

Table 3. Variations in travel distance, travel time and travel satisfaction according to the performed leisure activity

Activity	Urban respondents					Suburban respondents				
	N	Long travel distance	Long travel time	Positive emotion	Positive evaluation	N	Long travel distance	Long travel time	Positive emotion	Positive evaluation
A	246	65.8%	58.8%	0.96	1.17	208	72.6%	56.2%	1.24	1.46
B	139	19.1%	30.4%	1.18	1.42	27	69.2%	50.0%	1.22	1.30
C	53	43.1%	51.9%	1.18	1.27	86	51.9%	44.6%	1.62	1.71
D	86	38.1%	48.2%	1.10	1.44	66	81.0%	64.1%	1.18	1.43
E	178	37.4%	37.0%	0.98	1.24	155	56.4%	37.6%	1.22	1.53
F	89	29.1%	37.9%	1.20	1.25	54	73.1%	55.8%	1.29	1.50
G	200	28.9%	45.8%	1.31	1.50	133	71.3%	70.1%	1.36	1.59
Total	991	39.7%	41.9%	1.11	1.32	729	67.0%	51.2%	1.30	1.52

Note: Activities: A = Visiting family/friends; B = Going out to a bar/club; C = Eating out; D = Going to a forest/park/nature; E = Going to a cultural/sport activity as spectator; F = Going to a cultural/sport activity as active participant; G = Recreational shopping.

4.2 Distribution of respondents based on the residential neighbourhood and travel-liking attitudes

In this section we analyse the relationship between residential location and travel liking in greater detail by subdividing the respondents based on the score of the travel-liking variable (ranging from 1 to 5). Respondents with a score lower than 3 on this variable have a negative stance towards travelling, while respondents with a score of 3 or higher have a more positive stance towards travelling³. Due to the rather low average scores on the travel-liking statements there are more travel haters than travel lovers. Combining these travel-liking attitudes with the residential location

³ It has to be noted that there is a substantial group of respondents (i.e., 11.1%) having a score of 3 on the travel-liking variable. Therefore, the allocation of these respondents to travel haters or travel lovers makes a considerable difference in the subdivision of the two groups (respectively 67.3% - 33.7% and 56.2% - 43.8%). We opted for the most evenly balanced distribution of respondents, i.e., by allocating this group of respondents to the travel lovers.

of respondents results – based on residential self-selection studies of De Vos et al. (2012) and Schwanen and Mokhtarian (2005a, 2005b) – in four groups:

- Urban travel hater: urban residents with negative travel-liking attitudes
- Urban travel lover: urban residents with positive travel-liking attitudes
- Suburban travel hater: suburban residents with negative travel-liking attitudes
- Suburban travel lover: suburban residents with positive travel-liking attitudes

Table 4 shows the distribution of respondents in the four groups. Most respondents with a negative stance towards travelling reside in urban neighbourhoods, while travel lovers are almost equally distributed in urban and suburban neighbourhoods. In other words, there are more urban travel haters compared to urban travel lovers while travel lovers and travel haters almost have an equal share in suburban neighbourhoods. This seems to suggest that especially travel haters try to live in urban neighbourhoods in order to limit unnecessary travel, while travel lovers do not necessarily try to self-select themselves in suburban neighbourhoods. This might be explained by the fact that suburban residents are often forced to travel long distances due to a low density and a low diversity, while urban residents can still choose to travel longer distances than necessary. Although most amenities are nearby, they still have the option to travel to farther places.

Table 4. Distribution of respondents according to the residential neighbourhood and travel-liking attitudes

		Residential neighbourhood		Total
		Urban neighbourhood	Suburban neighbourhood	
Travel-liking attitudes	Travel haters	606 (35.2%)	360 (20.9%)	966 (56.2%)
		Urban travel haters	Suburban travel haters	
	Travel lovers	385 (22.4%)	369 (21.5%)	754 (43.8%)
		Urban travel lovers	Suburban travel lovers	
	Total	991 (57.6%)	729 (42.4%)	1720 (100%)

It is interesting to compare the distribution of urban and suburban respondents according to travel-liking attitudes on the one hand (this study) with mode-specific attitudes on the other hand (De Vos et al., 2015a; using the same data). De Vos et al. (2015a) found that 35.5% of the respondents are urban respondents with a preference for active travel and public transport, while 22.1% of the respondents are urbanites preferring car use. These results are very similar with the results found in Table 4, based on travel-liking attitudes (i.e., 35.2% urban travel haters and 22.4% urban travel lovers). However, De Vos et al. (2015a) found a bigger group of suburban car lovers (24.8%) and a smaller group of suburbanites with a preference for active travel and public transport (17.6%), compared to suburban travel lovers and suburban travel haters, respectively. This suggests that mode-specific attitudes explain the residential location slightly better than travel-liking attitudes. However, the limited differences do indicate that travel-liking attitudes also play an important role in the residential location choice.

Although the proposed self-selection hypotheses states that travel lovers prefer to live in suburban-style neighbourhoods and that travel haters prefer to live in urban neighbourhoods, this is not the case for a significant amount of the respondents. More than one third of the travel haters (37.3%) lives in the suburbs, while more than half of the travel lovers (51.1%) lives in urban neighbourhoods. In total, 44.3% of the respondents do not live in their preferred neighbourhood regarding travel distance and travel time. The reasons for this dissonance between residential location and travel-liking attitudes might be similar as the reasons for residential dissonance based on mode-specific attitudes and the residential location, as mentioned by Schwanen and Mokhtarian (2004) and De Vos et al. (2012). Elements such as income and distance to work can constrain the residential location choice. Households with low incomes, for instance, can often not afford their preferred residential location. Since the residential location choice is a household decision, varying attitudes and preferences within households can also result in a dissonance between the preferred and the actual residential location (Molin et al., 1999).

4.3. The effects of travel liking and the residential location on travel distance, travel time and travel satisfaction

In order to look at how travel distance, travel time and travel satisfaction differs according to travel-liking attitudes and the residential location we analyse how these travel characteristics differ according to the four different groups of respondents (Figure 2). Pearson chi-square tests were performed to determine if there were significant differences in the distribution of responses by travel-liking attitudes and the residential location separately, and travel-liking attitudes within each residential location type and by residential location within each travel-liking category (Table 5).

Travel distance clearly differs according to the residential location. The share of suburban residents that travels more than 5 kilometres to their most recent leisure activity (66.9%) is significantly higher than the share of urban residents (i.e., 39.7%). Also when looking at travel lovers and travel haters separately, suburban residents have significantly more trips longer than 5 kilometres compared to urban residents. Although less explicit, travel lovers travel significantly more long distances than travel haters. However, this is not the case when we only look at suburban residents. The amount of trips longer than 5 kilometres is not significantly higher for suburban travel lovers than for suburban travel haters, again indicating that travel-liking attitudes are less decisive in suburban neighbourhoods than in urban neighbourhoods because suburban residents are often forced to travel longer distances. The same pattern is present for travel time. The amount of trips longer than 15 minutes is significantly larger for suburban respondents compared to urban respondents, also when looking at travel haters and lovers separately (although for travel lovers only at $p < 0.1$). Travel lovers participate significantly more in trips longer than 15 minutes compared to travel haters. This is also the case when only looking at urban residents. However, when only considering suburban residents, there is no significant difference between travel lovers and haters in amount of trips longer than 15 minutes, suggesting that travel-liking attitudes do not constrain travel time in suburbs due to the physical characteristics of these neighbourhoods (restricting the possibility of short travel times). Results consequently indicate that the residential neighbourhood has a significant effect on travel time and especially travel distance, also when controlling for travel-liking attitudes. This is in line with the idea that travel-related residential self-selection is in itself a demonstration of the influence of the residential location on travel behaviour. If there were no such influence, people

preferring car use and long travel distances would not have a preference for living in a suburban-style neighbourhood (Chatman, 2009; Næss, 2006, 2009, 2014).

The distribution of the four groups according to emotions experienced during the leisure trip and the evaluation of that trip is slightly different compared to the distribution according to travel distance and travel time. Since urban travel lovers experience and evaluate their most recent leisure trip more positively than suburban travel haters, this suggests that travel-liking attitudes affect travel satisfaction more than the residential location (Figure 2), indicating that general attitudes towards travel affect satisfaction with one specific trip. Not surprisingly, travel lovers experience and evaluate their leisure trip significantly more positive than travel haters. It might be possible, however, that respondents confound travel satisfaction of their most recent leisure trip with general attitudes towards travel liking, especially since we used a retrospective measure to analyse travel satisfaction and that some travel-liking attitudes (e.g., *Travelling is boring*) might be confounded with certain items from the Satisfaction with Travel Scale (e.g., *bored - enthusiastic*). Therefore, the effect of travel liking on travel satisfaction might be overestimated in this study. Also when looking at urban residents and suburban residents separately, we can see that travel lovers experience travel significantly more positive than travel haters (although the differences in trip evaluation between suburban travel lovers and suburban travel haters is only significant at $p < 0.1$). Although the effect of the residential location on travel satisfaction is smaller than the effect of travel-liking attitudes, travel satisfaction also differs according to where people live. Urban residents experience and evaluate their trip significantly less positive compared to suburban residents. Analysing travel lovers and haters separately indicates that differences between urban and suburban residents are only significant to a certain degree ($0.01 < p < 0.05$), while differences in the evaluation of the trip between travel loving urban and suburban respondents are not significant at all.

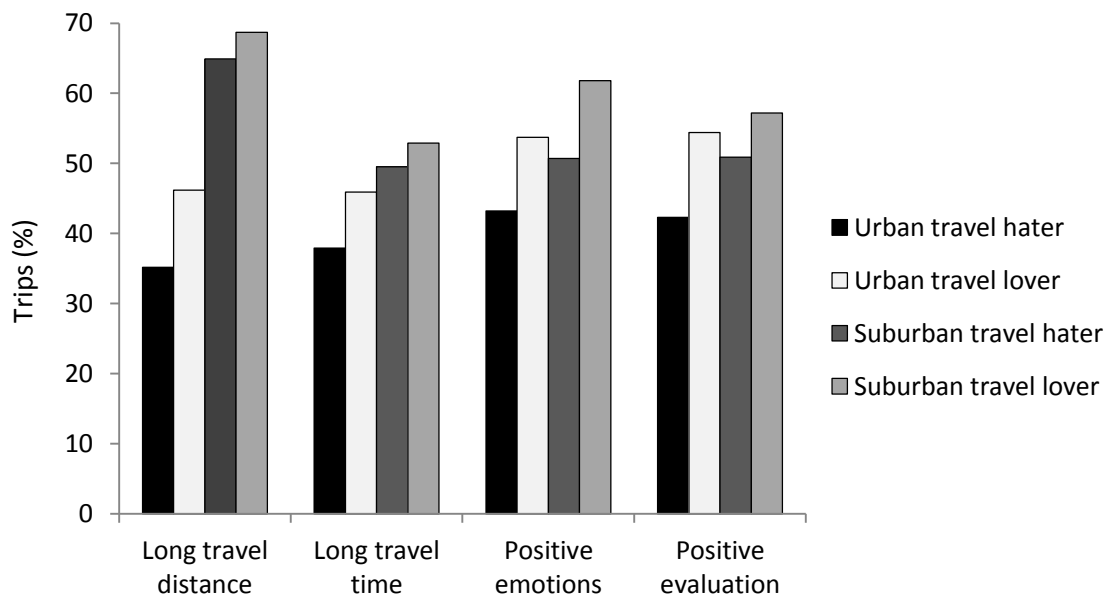


Figure 2. Travel distance, Travel time, positive emotions during travel and positive trip evaluation within groups of similar residential neighbourhood and travel-liking attitudes.

In sum, both travel-liking attitudes and the residential neighbourhood significantly affect travel distance, travel time and travel satisfaction. However, when controlling for the residential neighbourhood, travel liking only affects travel distance and travel time of urban residents and not of suburban residents. When controlling for travel liking, the effect of the residential neighbourhood on travel satisfaction is limited; especially travel satisfaction of travel lovers is only affected by the residential neighbourhood to a limited degree.

Table 5. Chi-square tests on cross-tabulations of travel distance, travel time, emotions during travel and trip evaluation by residential location and travel liking, singly and each controlling for the other.

	Value	p
Travel distance		
<i>Residential location</i>		
Urban versus suburban	138.4	0.00
Urban travel lover versus suburban travel lover	92.4	0.00
Urban travel hater versus suburban travel hater	39.3	0.00
<i>Travel liking</i>		
Travel lovers versus travel haters	25.5	0.00
Urban travel lovers versus urban travel haters	17.0	0.00
Suburban travel lovers versus suburban travel haters	1.2	0.27
Travel time		
<i>Residential location</i>		
Urban versus suburban	17.3	0.00
Urban travel lover versus suburban travel lover	3.6	0.06
Urban travel hater versus suburban travel hater	12.2	0.00
<i>Travel liking</i>		
Travel lovers versus travel haters	8.6	0.00
Urban travel lovers versus urban travel haters	6.3	0.01
Suburban travel lovers versus suburban travel haters	0.8	0.36
Emotions during travel		
<i>Residential location</i>		
Urban versus suburban	13.8	0.00
Urban travel lover versus suburban travel lover	5.0	0.03
Urban travel hater versus suburban travel hater	5.2	0.02
<i>Travel liking</i>		
Travel lovers versus travel haters	22.9	0.00
Urban travel lovers versus urban travel haters	10.5	0.00
Suburban travel lovers versus suburban travel haters	8.9	0.00
Trip evaluation		
<i>Residential location</i>		
Urban versus suburban	8.5	0.00
Urban travel lover versus suburban travel lover	0.6	0.42
Urban travel hater versus suburban travel hater	6.7	0.01
<i>Travel liking</i>		
Travel lovers versus travel haters	17.8	0.00
Urban travel lovers versus urban travel haters	13.7	0.00
Suburban travel lovers versus suburban travel haters	3.0	0.08

5. Discussion and conclusion

In this paper we have analysed how the residential location and travel-liking attitudes affect travel distance, travel time and travel satisfaction of leisure trips in order to investigate a possible self-selection process. This process suggests that people who do not like to travel prefer to live in a

neighbourhood making it possible to minimise travel, while people with a more positive stance towards travelling prefer to live in a neighbourhood where it is easily possible to travel long trips (both in distance and time). Results indicate that respondents with a relatively positive stance towards travelling are almost equally distributed in urban and suburban neighbourhoods, while respondents who do not like to travel mainly live in urban neighbourhoods. This suggests that especially travel haters try to self-select themselves in urban areas to limit travel distance and travel time. Suburban residents are often forced to travel relatively long distances due to a low density and diversity, making it difficult for travel haters to limit their travel. Since urban residents can choose to travel to (leisure) activities which are not the closest one, travel distance (and time) is less determined for urban travel lovers. Travel satisfaction, on the other hand, is mostly affected by travel-liking attitudes; travel lovers experience and evaluate their travel more positively than travel haters. Although urban respondents have a lower travel satisfaction than suburban respondents, urban travel lovers evaluate their trip more positively than suburban travel haters, indicating that urban respondents who like to travel are capable of realising a satisfying travel behaviour. This might be explained by the fact that urban travel lovers travel longer trips (in distance and time) than urban travel haters, since urban residents can choose to travel longer distances than necessary.

This paper indicates that travel-related residential self-selection might not only be an outcome of mode-specific attitudes, but also of travel-liking attitudes. In previous studies, travel liking has barely been used as an explanatory variable of travel behaviour, although the effect of attitudes on travel behaviour is widely accepted (see, for instance, Van Acker et al., 2011). Just as mode-specific attitudes affect travel mode choice, travel-liking attitudes affect travel characteristics such as trip length (in distance and time) and travel satisfaction. This travel satisfaction – which only is being analysed recently – is consequently not only a result of mode choice and other trip characteristics, but also of (travel-liking) attitudes. The role of this travel satisfaction is still underexposed, although this study provides a contribution to the role of travel satisfaction in travel behaviour research.

What lessons for policymaking can be drawn from this proposed self-selection hypothesis? Although people who do not like to travel will try to self-select themselves in urban neighbourhoods resulting in shorter distances and more active travel, reducing the negative effects of long-distance car use (such as greenhouse gas emissions and congestion), travel haters experience and evaluate their travel less positive compared to travel lovers, which can negatively affect (i) the performance and satisfaction of activities at the destination of the trip and (ii) overall well-being (Bergstad et al., 2011; De Vos et al., 2013; Ettema et al., 2010). People with a more positive stance towards travel are more satisfied with their trips. However, they travel longer distances which are often covered by car. This leaves us with a dilemma, travel loving increases well-being, while travel hating stimulates sustainable travel behaviour. How can travel satisfaction be increased without increasing long-distance (car) travel or increase short-distance (active) travel without decreasing travel satisfaction? Based on the travel characteristics of the four groups of respondents (Figure 2), the group with the most potential to improve their situation and realise this goal are the suburban travel haters. These respondents are often forced to travel long distances by car, increasing congestion and air pollution, but are significantly less satisfied than suburban travel lovers. Even urban travel lovers are more satisfied with their travel. A possible relocation of these suburban residents to a more compact, mixed-use neighbourhood (encouraged by providing incentives to relocate) can reduce their travel time and especially their travel distance; a lot more trips would be shorter than five kilometres,

stimulating active travel. The reduction in travel satisfaction would be rather limited; suburban travel haters are only more satisfied with their travel at $0.01 < p < 0.05$. According to Verplanken et al. (2008), a context change enhances the likelihood that important values and related beliefs are activated and therefore guide behaviour. A change in residential context (i.e., from suburban to urban neighbourhood) might consequently unfreeze undesired car habits and increases the probability that travel-related choices (e.g., travel mode choice, travel distance) are based on travel-related attitudes. Therefore, it seems best to attract travel haters to urban-type neighbourhoods as they have the biggest chance of changing their travel behaviour in a positive way. This supports the idea of developing compact, mixed-use neighbourhoods as formulated by concepts such as New Urbanism, Compact City and Transit-Oriented Development. Realising these types of neighbourhoods, by increasing density and diversity of existing areas or by creating new compact neighbourhoods, might persuade suburban travel haters to relocate to these more urban-type neighbourhoods. A bigger supply of dwellings in compact neighbourhoods will reduce the housing prices in these areas. Since the high prices of urban dwellings might have been a reason for travel haters to live in suburbs, a reduction of residential prices might convince them to live in urban-style neighbourhoods (De Vos et al., 2012; Schwanen and Mokhtarian, 2005a).

A relocation of suburban travel lovers to urban neighbourhoods would only reduce travel satisfaction to a limited degree (only the emotions during travel will slightly decline), but would probably increase congestion in urban areas since urban travel lovers travel longer distances than urban travel haters. An alternative way of reducing trip length, and consequently car use, is by making travel lovers more conscious about the negative effects of long-distance (car) travel. Although reducing travel-loving preferences of urban travel lovers – resulting in a shift from urban travel lovers to urban travel haters – might result in less kilometres travelled, it would also result in a reduced travel satisfaction. Changing attitudes of suburban travel lovers towards a more negative stance on travelling would only reduce travel distance and time to a limited degree, while travel satisfaction would reduce considerably.

It might not come as a big surprise that travel satisfaction is mainly affected by travel liking, while travel distance and travel time are primarily influenced by the residential neighbourhood, since travel satisfaction can be regarded as a direct outcome of travel-liking attitudes, while travel time and especially travel distance are a direct outcome of the residential neighbourhood. The effect of the residential neighbourhood on travel satisfaction, however, is possibly more indirect than direct; people who do not like to travel self-select themselves in urban neighbourhoods where it is possible to limit travel. Although this study suggests a possible self-selection process where the liking for travel affects the residential location choice, the indirect relation of travel liking on travel distance, time and satisfaction was not measured because the relation between travel-liking attitudes and the residential location is slightly problematic. A large share of respondents already lives in their neighbourhood for multiple years (59.1% of the respondents indicate that they already live more than five years in their current dwelling), whereby both the physical characteristics of the neighbourhood and the attitudes towards travel might have changed and might therefore differ from those leading to the prior residential location choice (Cao et al., 2009). It might therefore be interesting to have information on travel-liking attitudes, the residential location and varying travel characteristics for people who recently moved. Doing so, it is possible to analyse the links between travel-liking attitudes, the residential location, travel distance, travel time and travel satisfaction as

indicated in Figure 1 in greater detail. A possible way to do so is conducting a Structural Equating Modelling (SEM) approach. SEM is a useful method for representing multiple relationships among a set of variables, where the same variable that is the outcome (dependent variable) in one set of relationships may be a predictor of outcomes (explanatory variable) in other relationships. Applying this method makes it possible to indicate whether the residential neighbourhood really affects travel distance, travel time and travel satisfaction or whether travel-liking attitudes affect these characteristics through the residential neighbourhood. In the latter case, attitudes would affect travel distance, time and satisfaction both directly and indirectly, attenuating the effect of the residential location on these travel characteristics. Of course, the magnitude of the effect of the residential location and the direct and indirect effect of travel-liking attitudes might vary between travel distance, travel time and travel satisfaction.

A SEM might also answer some other fundamental questions of causation. The causality of relationships between the residential location, travel-liking attitudes and travel characteristics (travel satisfaction in particular) might not be as obvious as visualised in Figure 1. It might be possible, for instance, that the residential location affects travel liking of people. The relatively low levels of travel liking of urban residents might not only be a result of self-selection processes, but also a result of urban travel, which is often characterised by negatively perceived elements such as congestion and parking problems. Furthermore, it is also possible that satisfaction with a particular trip affects travel-liking attitudes, instead of the other way around. Recently, Cao and Ettema (2014) also claimed that people move to locations that allow them to have ‘happy travel’. This suggests a reciprocal relationship between the residential location choice and travel satisfaction. It is possible that positively evaluated trips affect residential location preferences indirect, through travel-related – both mode-specific and travel-liking – attitudes. However, in order to analyse a potential effect of travel satisfaction on the residential location it might be more appropriate to use (daily) commute trips, as frequent trip (dis)satisfaction might have a stronger effect on travel-related attitudes and residential location preferences than travel satisfaction of rather irregular leisure trips. Furthermore, qualitative research – applying in-depth interviews – could also help clarifying the strength and causality of the links between travel behaviour, (travel-liking) attitudes and the residential location. Finally, using longitudinal data, instead of cross-sectional data, might also improve our understanding of how travel-liking attitudes change over time, for instance due to the experience of trips. Most self-selection studies fail to address the potential for attitude formation and adaptation, partly due to the limited availability of longitudinal data. Longitudinal data are also interesting to analyse how travel-related attitudes, travel behaviour and travel satisfaction evolve over time due to a change in residential context, for instance when travel haters relocate from a suburban neighbourhood to an urban neighbourhood.

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